

Name:

Date:

/50

%

PART A In the space on the left, write the letter of the term or phrase which **best** completes the statement or answers the question (1 mark each).

- ____ 1. The ____ includes all of the water in, on, or near the Earth's surface.
a. Troposphere
b. Hydrosphere
c. Lithosphere
d. Atmosphere
- ____ 2. The amount of solar radiation that is reflected by a surface is ...
a. Insolation
b. The angle of incidence
c. Albedo
d. Humidity
- ____ 3. Sea breezes occur when ...
a. Warm air over land replaces cool air rising over water.
b. Warm air over water replaces cool air rising over land.
c. Cool air over land replaces warm air rising over water.
d. Cool air over water replaces warm air rising over land.
- ____ 4. The first barometer used which element to measure atmospheric pressure?
a. Oxygen
b. Hydrogen
c. Iron
d. Mercury
- ____ 5. ____ is the energy needed to change a substance from one state to another without changing temperature.
a. Specific heat capacity
b. Latent heat
c. Melting point
d. Albedo
- ____ 6. Which pair of substances have low albedos?
a. Snow and clouds
b. Snow and water
c. Forests and water
d. Clouds and black soot

- ___ 7. Barometers are used to measure ...
a. Pressure
b. Humidity
c. Temperature
d. Radiation
- ___ 8. Which term refers to the total kinetic and potential energy of all particles in a substance?
a. Temperature
b. Thermal energy
c. Heat
d. Latent heat
- ___ 9. What type of heat transfer occurs within a fluid?
a. Convection
b. Radiation
c. Absorption
d. Conduction
- ___ 10. The SI unit for atmospheric pressure is the ...
a. kilopascal
b. centimetre
c. metre
d. pascal

PART B In the space provided mark each of the following as true or false. (1 mark each)

- ___ 1. Conduction occurs easily within a gas.
- ___ 2. A tornado is a rapidly rotating wind that forms within a thunderstorm.
- ___ 3. Humidity measures the amount of water vapour in the air.
- ___ 4. Isobars join locations of equal atmospheric pressure on a map.
- ___ 5. A jet stream is a band of fast-moving air in the lower troposphere.
- ___ 6. Albedo describes the amount of radiation that is absorbed by a surface.
- ___ 7. Sea breezes are warm breezes that blow on to the land.
- ___ 8. Fluids in the northern hemisphere are deflected to the right of their direction of travel.
- ___ 9. Temperature measures the average kinetic energy of all particles in a sample of matter.
- ___ 10. As temperature increases volume decreases.

PART C In the space provided, match each term or phrase with the best definition. (1 mark each)

- | | |
|------------------------|--|
| ___ 1. Coriolis effect | A. This atmosphere layer is where weather takes place. |
| ___ 2. Radiation | B. Measures the amount of water vapour in air. |
| ___ 3. Albedo | C. Explains a moving object's change in direction due to Earth's rotation. |
| ___ 4. Troposphere | D. The amount of force per unit area. |
| ___ 5. Prevailing wind | E. High-energy rays and particles emitted by radioactive sources. |
| ___ 6. Pressure | F. Winds that blow in a consistent pattern over a large part of the Earth. |
| ___ 7. Sea breeze | G. Fast moving air in the upper troposphere. |
| ___ 8. Land breezes | H. More dense air over land replaces less dense air over water. |
| ___ 9. Humidity | I. The amount of solar radiation that is reflected by a surface. |
| ___ 10. Jet streams | J. More dense air over water replaces less dense air over land. |

PART D Each of the following questions requires a short answer.

1. How does heat transfer by conduction? (1 mark)

2. How does heat transfer by convection? (1 mark)

3. How does heat transfer by radiation? (1 mark)

4. Hows does temperature influence ... (3 marks)

air pressure?

air density?

air's water content?

5. You are boiling some water in a pot on a stove, as it heats up, the air around the pot feels hot. Explain how all three forms of heat transfer are involved in this scenario. (3 marks)
6. How do the albedos of the Earth's surfaces affect the temperature of the planet? Provide an example of a surface with a low albedo and one with a high albedo in your description. (4 marks)
7. Why is the equator warmer than the North and South Poles? (2 marks)

8. A firewalker can walk over hot coals with a temperature of more than 500°C but cannot walk through a tray of boiling water at 100°C . Explain why. (4 marks)
9. Why does the Earth experience seasons? (1 mark)